

A1
conc.

unit 12. Hence the coupler 68 and the test result signal 34 are synchronized to the antenna couple enable signal 170. The capacitor CC acts as a coupling capacitor to remove DC energy from the test result signal 34 and couple the test result signal 34 to the antenna 50.--

✓
Please replace the paragraph beginning at page 28, line 23 with the following rewritten paragraph:

A2

-- An alternative embodiment for transmitting the test result signal 34 to the test unit 12 involves modulating the impedance of the antenna 50 to re-radiate an RF signal that contains the information of the test result signal 34. Referring to Figure 27, a partial view of the test circuit 14 shows that the alternative embodiment of the coupler 68 includes synchronization and coupling features. The coupler 68 includes two transistors QC1 and QC2 that are connected in series. The transistor QC2 acts as both a synchronization element and as a coupler to couple the transistor QC1, the impedance of which encodes the test result signal 34, to the antenna 50. The transistor QC2 is controlled by the antenna couple enable signal 170 in the same fashion described for the embodiment shown in Figure 26. The test result signal 34 is used to control the transistor QC1 which is connected such that it behaves like a resistor when enabled. When the test result signal 34 has a digital logic value of '1', the transistor QC1 is enabled and increases the resistance of the antenna 50. Conversely, when the test result signal 34 has a digital logic value of '0', the transistor QC1 is disabled and the impedance of the antenna 50 returns to its original value. Since the periodic transition from a digital logic value of '1' to a digital logic value of '0' and vice-versa indicates the frequency of the test result signal 34, the frequency of the impedance modulation of the antenna 50 encodes the frequency information contained within the test result signal 34.--

✓
Please replace the paragraph beginning at page 29, line 7 with the following rewritten paragraph:

A3

-- In either of the aforementioned embodiments, if the test result signal 34 were coupled to the antenna 50 without the antenna couple enable signal 170, the test unit 12 would see a series of frequencies but would not be able to easily determine which test state the test circuit 14 is currently in. To allow for synchronization between the test unit 12 and the test circuit 14, the sequencer 60 also switches the synchronization element 66 shown in Figure 26 or the transistor QC2 in the coupler 68 shown in Figure 27 so that before each repetition of the test sequence, i.e. during test state 0 or 8, the coupler 68 is disabled so that no signal is radiated towards the test unit 12. The test unit 12 may therefore synchronize to the test result signal 34 by the absence of reception of the test result signal 34 from the test circuit 14.--

✓
Please replace the paragraph beginning at page 29, line 28 with the following rewritten paragraph:

A4

-- Referring to Figure 28, a modification of the test circuit 14 which would allow the test circuit 14 to test a sub-circuit 180 within the IC 18 is shown. This embodiment

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includes the circuitry shown in Figure 7 as well as an enable transistor **QE** connected to ground **VSS**, a test signal **182** and an enable test sub-circuit signal **184**. The source voltage **VDD** which is used to power the sub-circuit **180** is provided by the voltage rectifier **52**. The power of the sub-circuit **180** is provided by the enable test sub-circuit signal **184** that grounds the sub-circuit **180**. This grounding is required because a ground path is needed before the sub-circuit **180** can be powered. This embodiment is preferable because there is a low voltage drop across the transistor **QE**. In this configuration, the sequencer **60** is modified to provide the enable test sub-circuit signal **184** as well as the test signal **182** that is used to test the functionality of the sub-circuit **180**. The test signal **182** can be used to set one or many logic states within the sub-circuit **180**. The resulting output signal of the sub-circuit **180**, i.e. the test result signal **34**, is then sent to the coupler **68**. The coupler **68** also receives the antenna couple enable signal **170** which was previously described in the alternative embodiment shown in Figure 27 (alternatively, the embodiment having the synchronization element **66** and the coupler **68** shown in Figure 26 may also be used for synchronization and coupling). The test result signal **34** may then be transmitted to the test unit **12** where the test result signal **34** may be evaluated to determine whether the sub-circuit **180** behaved correctly.--

In the figures:

Please replace original Figure 26 with the enclosed Figure 26.

In the claims:

✓
Please add new claims 70, 71 and 72 as follows.

A5

70. The apparatus of claim 24, wherein the transmitter circuit further comprises a synchronization element to couple the ring oscillator to the coupler.
71. The apparatus of claim 51, wherein the transmitter circuit further comprises a synchronization element to couple the ring oscillator to the coupler.
72. The method of claim 63, wherein step (j) further comprises providing a synchronization element to enable and disable the coupler.